Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (currently amended) A machine-implemented method of managing communications, the method comprising:

identifying a current path comprising current segments in a packet-switched network for traffic traveling from a source node to a destination node;

identifying a detour path comprising a first path from the source node to a detour node and a second path from the detour node to the destination node; and

converting the detour path into an alternate path comprising alternate segments for sending traffic from the source node to the destination node if the current path includes at least one current segment that will be different from the alternate segments;

wherein converting the detour path into the alternate path comprises comparing the current segments with a list of detour segments for the detour path, determining whether the first path is a sub-path of the current path, and determining whether the current path is a sub-path of the first path; wherein the sub-path determining excludes end nodes and repeated intermediate nodes from consideration.

2. (cancelled)

3. (currently amended) The method of claim 1 [[2]], wherein converting the detour path into the alternate path further comprises concatenating the first path and the second path.

4. (original) The method of claim 1, further comprising:

storing values for one or more attributes for the current path;

storing values for the one or more attributes for the alternate path;

receiving a service specification for a network communication; and

selectively using either the current path or the alternate path for the network communication based on the service specification and one or more of the stored values.

5. (original) The method of claim 4, wherein the one or more attributes include jitter, latency and bandwidth.

6. (original) The method of claim 5, wherein selectively using either the current path or the alternate path further comprises using a configurable algorithm to compare the service specification with jitter and latency characteristics for the current path and the alternate path.

7. (original) The method of claim 4, further comprising:

identifying failure of a segment; and

rerouting one or more flows affected by an identified segment failure.

8. (original) The method of claim 4, further comprising:

identifying when occupancy of a segment becomes greater than a predefined percentage of bandwidth capacity for the segment; and

rerouting one or more flows, which currently use the segment.

9. (original) The method of claim 8, wherein the rerouting one or more flows comprises dividing a flow between two or more paths.

10. (currently amended) A method of managing machine communications in a virtual private network having three or more network nodes coupled with a larger network, the method comprising:

identifying current paths used by the larger network for traffic sent among the three or more network nodes;

combining the current paths using at least one detour node to derive alternate paths through the larger network;

storing values relating to one or more path attributes for each of the current paths and for each of the alternate paths;

receiving a service specification for a network communication; and

selecting one of the alternate paths for the network communication if the stored value for a current path indicates that the current path is unsuitable for the network communication;

wherein combining the current paths to derive alternate paths comprises identifying a detour path comprising a first path from a source node of the three or more network nodes, to a detour node of the three or more network nodes, and a second path from the detour node to a destination node of the three or more network nodes; and converting the detour path into an alternate path if the current path includes at least one segment

that would not be included in the alternate path after conversion;

wherein converting the detour path into the alternate path comprises comparing current segments of the current path with a list of detour segments for the detour path, determining whether the first path is a sub-path of the current path, and determining whether the current path is a sub-path of the first path; wherein the sub-path determining excludes end nodes and repeated intermediate nodes from consideration.

11. (original) The method of claim 10, wherein the one or more path attributes comprise bandwidth capacity, the method further comprising storing values for a segment attribute for each of a plurality of segments making up the current paths and the alternate paths.

12. (original) The method of claim 11, further comprising:

identifying when occupancy of a segment becomes greater than a predefined percentage of bandwidth capacity for the segment; and

rerouting one or more flows, which currently use the segment.

13. (original) The method of claim 10, wherein the one or more path attributes comprise jitter and latency.

14. (original) The method of claim 13, wherein selecting one of the alternate paths for the network communication further comprises comparing the service specification with exponential averages of jitter and latency for the one of the current paths.

15. (original) The method of claim 14, wherein the exponential averages vary with an indication of length for the network communication included in the service specification.

16. (cancelled)

17. (currently amended) A machine-accessible medium that when accessed results in a machine performing operations comprising:

identifying a current path in a packet-switched network for traffic from a source node to a destination node;

identifying a detour path comprising a first path from the source node to a detour node and a second path from the detour node to the destination node; and

validating the detour path for the source-destination pair if the current path includes at least one segment not in the detour path;

wherein validating the detour path comprises comparing current segments of the current path with a list of detour segments for the detour path, determining whether the first path is a sub-path of the current path, and determining whether the current path is a sub-path of the first path; wherein the sub-path determining excludes end nodes and repeated intermediate nodes from consideration.

18. (original) The machine-accessible medium of claim 17, wherein the operations further comprise:

storing values relating to one or more attributes for the current path;

storing values relating to the one or more attributes for the detour path;

receiving a service specification for a network communication; and

selectively using either the current path or the detour path for the network communication based on the service specification and one or more of the stored values.

19. (currently amended) A network system comprising:

three or more separate networks;

three or more nodes each respectively coupled with the three or more separate networks, and with a connecting network, which enables machine communications to pass among the three or more separate networks via the three or more nodes;

means for identifying current paths for the machine communications passing through the connecting network;

means for combining the current paths to derive alternate paths through the connecting network;

means for storing values for one or more path attributes for each of the current paths and for each of the alternate paths;

means for receiving a service specification for a machine communication; and

means for selecting one of the alternate paths for the machine communication if the stored value for one of the current paths is insufficient for the service specification;

wherein the means for combining comprises means for comparing current segments of a current path from a source node to a destination node with a list of detour segments for a detour path comprising a first path from the source node to a detour node and a second path from the detour node to the

destination node, determining whether the first path is a sub-path of the current path, and determining whether the current path is a sub-path of the first path; wherein the sub-path determining excludes end nodes and repeated intermediate nodes from consideration.

20. (original) The system of claim 19, further comprising:

means for identifying when occupancy of a segment in one of the current paths becomes greater than a predefined percentage of bandwidth capacity for the segment; and

means for rerouting one or more flows, which currently use the segment.

21. (currently amended) A network system comprising:

three or more separate networks;

three or more nodes coupled with the three or more separate networks respectively, and with a connecting network, which enables machine communications to pass among the three or more separate networks via the three or more nodes;

a traffic management server coupled with a network and in machine communication with the three or more nodes, the traffic management server configured to combine current paths for the machine communications to derive alternate paths through the connecting network, and maintain a data structure to store

values for one or more path attributes for each of the current paths and for each of the alternate paths to be used in selectively routing machine communications among the three or more nodes;

wherein the traffic management server is configured to compare current segments of a current path from a source node to a destination node with a list of detour segments for a detour path comprising a first path from the source node to a detour node and a second path from the detour node to the destination node, determine whether the first path is a sub-path of the current path, and determine whether the current path is a sub-path of the first path; wherein the sub-path determinations exclude end nodes and repeated intermediate nodes from consideration.

22. (original) The system of claim 21, wherein the three or more nodes are each configured to track path occupancy per flow, and wherein the traffic management server is further configured to identify when occupancy of a segment in one of the current paths becomes greater than a predefined percentage of bandwidth capacity for the segment to allow rerouting one or more flows, which currently use the segment.